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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/631,241 08/02/00 MARGOLIN

A VPI96-14CON

EXAMINER

001473 HM12/0523
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NAFF, D

ART UNIT

PAPER NUMBER

1651

DATE MAILED:

05/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/631241

Applicant(s)

Margolin et al

Examiner

Haff

Group Art Unit

1651

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 3/12/01
- ☒ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-79 + 81-85 is/are pending in the application.
- ☐ Of the above claim(s) is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1-79 + 81-85 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5 (filed 4/24/01)
 - ☐ Interview Summary, PTO-413
 - ☐ Notice of Reference(s) Cited, PTO-892
 - ☐ Notice of Informal Patent Application, PTO-152
 - ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
 - ☐ Other _____

Office Action Summary

The amendment of 3/12/01 has been entered. The amendment canceled claim 80 and amended claims 1, 17, 18, 31, 39, 48, 54, 55, 56, 67, 68, 70-75 and 81.

Claims examined on the merits are 1-79 and 81-85 which are all
5 claims in the application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-44, 46-63, 76 and 81-85 are rejected under 35 U.S.C. 102(a) as anticipated by Navia et al (5,618,710).

10 The claims are drawn to crosslinked protein crystals and methods for preparation thereof wherein the crosslinked protein crystals can be changed from insoluble form to soluble form by a change in temperature, change in pH, change in chemical composition, change from concentrate to dilute form or change in shear force acting on the crystal.

15 Navia et al disclose crosslinked protein crystals that are inherently capable of being changed to soluble form by one or more of the changes claimed. The present claims encompass crosslinked protein crystals and methods for preparation thereof disclosed by Navia et al.

Applicants urge that Navia et al produce crosslinked protein
20 crystals that do not dissolve under harsh conditions. However, the present specification discloses (page 9, lines 13-15) that the crosslinked crystals of the invention are stable to harsh conditions imposed by the formulations or compositions in which they are employed or conditions of storage. Additionally, in the present specification, in
25 example 18, the final crosslinker concentration is 4%, and crosslinking is carried out for 24 hours. These conditions appear to be also used in

examples 19 and 20. In example 22, 6.5% glutaraldehyde is used and in example 23, 6.0% glutaraldehyde is used. These are the type of crosslinking conditions that can be used by Navia et al. Note that in example 4, 5.77% glutaraldehyde is used and in example 9 (col 48, line 5 40), 2% glutaraldehyde is used. If the crosslinking conditions can be the same or essentially the same, the presently claimed crosslinked crystals must be the same or essentially the same.

Applicants refer to tables V and VI as showing a comparison between crosslinked crystals prepared according to Navia et al and according to 10 the invention. However, it is unclear from the tables as to the difference in procedures used to prepare the crosslinked crystals of the invention as compared to those of Navia et al. The present claims do not require crosslinking conditions significantly different than can be used by Navia et al.

15 Claims 45 and 64-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Navia et al.

It would have been obvious to use a crosslinked enzyme crystal such as a protease produced as disclosed by Navia et al in a detergent formulation as required by claim 45 since it is conventional to use 20 enzymes such as proteases in detergent formulations and Navia et al disclose using crosslinked enzyme crystals for uses where enzymes are conventionally used.

It would have been a matter of obvious choice to use known crosslinking agents other than disclosed by Navia et al as in claims 64- 25 66 since the other crosslinking agents would be expected to provide crosslinked protein crystals.

Using amounts of crosslinking agent less than used by Navia et al as in claims 67-75 would have been obvious when a longer time is used for crosslinking. Using a combination of crosslinking agents as in claims 74-75 would have been obvious to obtain the functions of different crosslinking agents together.

Claims 1-62, 76-79 and 81-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Navia et al in view of Kausch et al (5,508,164), and if necessary in further view of Neville et al (5,066,490).

Claims 77-79 require a reversible crosslinking agent which can be a disulfide crosslinking agent.

Kausch et al disclose using disulfide crosslinking agents for reversible immobilization (col 6, lines 52-68).

Neville et al disclose using a reversible crosslinking agents for linking an amino group containing substance to a group on a second compound so the crosslinking agent can be cleaved to release the substance.

It would have been obvious to use a disulfide crosslinking agent as the crosslinking agent of Navia et al to obtain reversible immobilization as disclosed by Kausch et al. If needed, Neville et al would have further suggested a reversible crosslinking agent and that the agent can be other than a disulfide crosslinking agent.

Applicants urge that Kausch et al crosslink to immobilize. However, crosslinking protein crystals is a form of immobilization. It would have been obvious to release a protein from the crosslinked protein crystals of Navia et al for the same reason that Kausch et al release a protein

crosslinked to a support and Neville et al release a crosslinked biologically active substance.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

5 A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened
10 statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15 Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is (703) 308-0520. The examiner can normally be reached on Monday-Thursday and every other Friday from about 8:30 AM to about 6:00 PM.

20 If attempts to reach the examiner by telephone are unsuccessful, a message can be left on voice mail.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn, can be reached at telephone number (703) 308-4743.

25 The fax phone number is (703) 305-3014 or 308-4242.

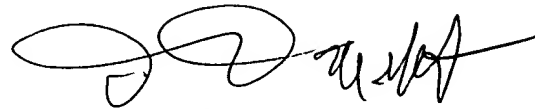
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

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DMN
5/21/01



DAVID M. NAFF
PRIMARY EXAMINER
ART UNIT 1651